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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/476,093	01/03/2000	DAVID F. SORRELLS	1744.0260001	7306

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EXAMINER	
CHOW, CHARLES CHIANG	

ART UNIT	PAPER NUMBER
2685	

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/476,093	SORRELLS ET AL.	
	Examiner	Art Unit	
	Charles Chow	2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3-6, 13, 15-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7-9, 12* is/are allowed.

6)☒ Claim(s) *1, 3-6, 13, 15, 18-23, 25-26* is/are rejected.

7)☒ Claim(s) *16,17 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/19/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action
(Office Action for RCE received on 11/19/2004)

1. Withdrawn the objection to the title, because the received title has been corrected.

2 The re-submitted drawings for Fig. 1-7, received on 11/16/2004, are acceptable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-5, 13, 15, 18-19, 20, 22, 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hongu et al. (US 4,132,952) in view of Gordy (US 4,346,477).

Regarding **claim 1**, Hongu et al. (Hongu) teaches a method for communicating comprising the step of (1) identifying a radio frequency band from the electromagnetic EM spectrum as a band of interest (multi-band, multi-channel, tune, for selecting proper filter for frequency band containing a desired channel, col. 1,lines 9-18, abstract, Fig. 1-7), (2) identifying a channel with the band of interest as a channel band combination and (3) filtering the EM spectrum thereby passing the channel/band combination (identifying desired channel by setting local oscillator frequency, to allow desired signal in a channel to pass through, and arrived at mixer, col. 3,lines 40-54), (5) filtering the down converted signal thereby passing the channel as a filtered down converted signal (the mixer 15 provides the down converted signal which are then filtered by filter 17L, 17H, Fig. 2, col. 3, lines 27-29). Hongu fails to teach the features in (4). However, Gordy teaches (4) the aliasing of

the channel/band combination according to an aliasing signal (the sampler 20 receives output signal from digital oscillator 22 for aliasing received, channel/band, signal via selectable band pass filter 14, channel selector 16, Fig. 1, col. 2, lines 58-col. 3, line 25), the aliasing signal having an aliasing frequency which is a function of a clock signal (the frequency selectable digital oscillator 22 has frequency which is a function of the received reference clock 42, Fig. 6, col. 6, line 64 to col. 7, line 12), wherein the aliasing transfers a portion of energy contained in a portion of the carrier signal (the translated signal portions of the harmonics energy at the output of the sampler 20, Fig. 3, col.4, lines 44-68), thereby generating a down-converted signal including the channel/band combination (the fourth harmonic component at 140 MHz of the down converted IF signal, the 15 MHz signal bandwidth for channel at 380 MHz, col. 4, lines 17-33). Gordy teaches the improved radio receiver using digital sampling frequency translation which is reliable for a receiver to be implemented to the large scale integrated circuit LSI. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hongu with Gordy's digital sampling frequency conversion for a receiver, such that the receiver could be reliably operated, with the benefit of the LSI.

Regarding **claims 3, 18, 26,** Hongu teaches the intermediate frequency signal from down conversion (col. 3, lines 37-39).

Regarding **claims 4, 19, 25**, Gordy teaches the down converted base band signal is a base band signal (col. 3, lines 17-25).

Regarding **claims 5, 15**, Gordy teaches the clock frequency and the method comprising the step of (6) adjusting the clock frequency for channel/band

combination so that the aliasing frequency is suitable for down-converting the channel/band combination (the clock frequency output from frequency selectable digital oscillator 22, the channel selector 16 send signal to 22 to select oscillator frequency for corresponding channel signal down conversion at sampler 20, Fig. 6, col. 5, line 63 to col. 6, line 23).

Regarding **claim 13**, Hongu teaches a method for communicating comprising the step of (1) identifying a radio frequency band from the electromagnetic spectrum as bands of interest (multi-band, multi-channel tuning for selecting proper filter for frequency band containing a desired channel, col. 1, lines 9-18, abstract, Fig. 1-7), (2) identifying a channel with the band of interest as channel/band combination and (3) identifying one of the channel/band combinations as a monitored channel/band combination (the setting local oscillator frequency to monitor, identifying one channel frequency, col. 3,lines 40-45), (4) causing an input filter to operate with the monitored channel/band combination and filtering an input signal using input filter (12L, 12H) to create a filtered signal having frequency within the monitored channel/band combination (the identifying desired channel by setting local oscillator frequency to allow desired signal in a channel to pass through, and arrived at mixer, col. 3, lines 40-54), (6) causing an output filter to operate with the monitored channel/band combination and filtering the down converted signal using output filter thereby generating a filtered down converted signal (the mixer 15 provides the down converted signal which are then filtered by filter 17L, 17H, Fig. 2, col. 3, lines 27-29). Hongu fails to teach the features in (5). However, Gordy teaches (4) the aliasing of the channel/band combination according to an aliasing signal (the sampler 20 receives

output signal from digital oscillator 22 for aliasing received, channel/band, signal via selectable band pass filter 14, channel selector 16, Fig. 1, col. 2, lines 58-col. 3, line 25), the aliasing signal having an aliasing frequency which is a function of a clock signal (the frequency selectable digital oscillator 22 has frequency which is a function of the received reference clock 42, Fig. 6, col. 6, line 64 to col. 7, line 12), wherein the aliasing transfers a portion of energy contained in a portion of the carrier signal (the translated signal portions of the harmonics energy at the output of the sampler 20, Fig. 3, col.4, lines 44-68), thereby generating a down-converted signal including the channel/band combination (the fourth harmonic component at 140 MHz of the down converted IF signal, the 15 MHz signal bandwidth for channel at 380 MHz, col. 4, lines 17-33). Gordy teaches the improved radio receiver using digital sampling frequency translation which is reliable for a receiver to be implemented to the large scale integrated circuit LSI. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hongu with Gordy's digital sampling frequency conversion for a receiver, such that the receiver could be reliably operated, with the benefit of the LSI.

Regarding **claim 20**, Hongu teaches a system for communicating comprising an input filter module (BPF 12L, 12H) comprised of one or more input filters (12L, 12H) to filter one or more input signals so as to generate one or more filtered input signals (the filter 12L, 12 H, to provide the filtered input signal for channels in low, upper band of 90-108 MHz or 170-220 MHz), the output filter module comprised of one or more output filters to filter the down converted signal (BPF 17 filters the down converted signal from mixer 15). Hongu fails to teach a universal frequency translator

(sampler 20, oscillator 22, selectable filter 14, Fig. 1) to down convert at lease one or more filtered input signals to generate down converted signal (the down converted output signal from sampler 20) the universal frequency translator comprising means for aliasing the filtered signal according to an aliasing signal (the channel selector 16 selects band pass filter for filtering received input signal corresponding to the oscillator signal), the aliasing signal having an aliasing frequency which being a function of a clock signal wherein the means for aliasing transfers a portion of energy contained in a portion of the carrier signal thereby generating the down converted signal. Gordy teaches these features, the sampler 20 receives output signal from digital oscillator 22 for aliasing received, channel/band, signal via selectable band pass filter 14, channel selector 16 (Fig. 1, col. 2, lines 58-col. 3, line 25; the frequency selectable digital oscillator 22 has frequency which is a function of the received reference clock 42 (Fig. 6, col. 6, line 64 to col. 7, line 12), the translated signal portions of the harmonics energy at the output of the sampler 20 (Fig. 3, col.4, lines 44-68), the fourth harmonic component at 140 MHz of the down converted IF signal, the 15 MHz signal bandwidth for channel at 380 MHz (col. 4, lines 17-33). Gordy teaches the improved radio receiver using digital sampling frequency translation which is reliable for a receiver to be implemented to the large scale integrated circuit LSI. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hongu with Gordy's digital sampling frequency conversion for a receiver, such that the receiver could be reliably operated, with the benefit of the LSI.

Regarding **claim 22**, Hongu teaches the control signal generator is a voltage controlled oscillator (local oscillator 16 for different channels, col. 3, lines 34-39).

4. Claims 21, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hongu in view of Gordy, as applied to claim 20 above, and further in view of Lam et al. (US 5,937,013).

Regarding **claim 21**, Lam et al. (Lam) teaches the control signal generator that outputs a control signal wherein the universal frequency translator operates according to the control signal (blocks 380, 330, 340, 350, 360, 370 for controlling the down conversion, Fig. 3, for frequency translation operated according to the control signal generated by the circuit blocks 380, 330, 340, 350, 360, 370). Lam teaches the efficient under sampling down conversion without using high power high bandwidth for many low power design (col. 3, lines 51-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hongu, Gordy, with Lam's oscillator frequency control signal, such that the receiver could be operated with efficient.

Regarding **claim 23**, Gordy teaches the decoder module comprised of one or more decoders ((sampler 30 and 34, 36) wherein the decoder module decodes the filtered down converted signal to generate a decoded output signal (decoded data, voice, col. 3, lines 17-25).

5. Claim 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hongu in

view of Gordy, as applied to claim 1 above, and further in view of Smith et al. (US 5,790,587).

Regarding **claim 6**, Hongu and Gordy fail to teach the decoding. However, Smith et al. (Smith) teach the IF/demodulation 730 acting as a spectrum decoder (col. 18, lines 51-58) for the decoding said filtered down converted to create a decoded down converted signal. Smith teaches a communication system having selectable frequency bands and selectable modes for user interest (Fig. 9-13, Fig. 14/Fig. 15; col. 1, lines 22-25; col. 2, line 46 to col. 4, line 5; col. 4, lines 46-28; col. 18, lines 4-67; the monitoring of one or more single frequency in a frequency bands for a repeating demodulation process for each frequency/channel (abstract, col. 18, lines 29-50; col. 15, lines 55-67; col. 18, lines 46-67). Smith teaches the improved technique for operating under plurality of frequency bands with multiple modes, by utilizing single synthesizer 721 with input filter BPF 714, 715. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hongu, Gordy with Smith's decoder, such that the receiver could be efficiently operating for multi-band with multiple modes, by utilizing single synthesizer 721 with input filter BPF 714, 715.

Allowable Subject Matter

6. The following is an examiner's statement of reasons for allowance:

Claims 7-9, 12 are previously allowed in the final office action mailed on 8/17/2004. Claims 7-9, 12 are allowable over the prior art of record, the prior art fails to teach singly, particularly, or in combination, the subject matter, with priority date of 1/22/1999, for a controller to generate a control signal according to **first command;**

and a unified down converting and filtering UDF module to filter and down convert one or more input signals based on control signal and according to **second command** (claim 7). The dependent claims are also allowable due to their dependency upon the independent claims. The closest patent to Lam et al. (US 5,937,013) teaches the under sampling down conversion utilizing aliasing signal, under sampling, sampling received signal for down conversion by utilizing frequency rate lower than the carrier frequency, as shown in claim 1 above. Lam fails to teach the controller to generate a control signal according to first command; and a unified down converting and filtering UDF module to filter and down convert one or more input signals based on control signal and according to second command. Hongu-'952 teaches the multi-band user desired channel down conversion having input filters BPF 12L/12H, switch Sa, mixer 15, BPF filters 17L/17H, switch Sb (Fig. 2). Hongu fails to teach the controller to generate a control signal according to first command; and a unified down converting and filtering UDF module to filter and down convert one or more input signals based on control signal and according to second command.

Claims Objection

7. Claims 16-17, 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitation of the base claim and any intervening claims. The cited prior arts fail to teach the selecting decoder being configured to operate with monitored channel/band combination and using selected decoder to create down converted signal (claim 16), comprising the steps repeating steps 2 through 6 (claim 17), the controller operates

under direction of user, the controller to issue at least a first command signal to fifthe command signal (claim 24).

Response to Argumnt

8. Applicant's arguments with respect to claims 1, 3-6, 13, 15, 18-23, 25-26 have been considered but are moot in view of the new ground(s) of rejection.

Regarding applicant's argument for the no teachings for the down conversion by aliasing wherein the aliasing transfers a portion of energy contained in a portion of the carrier signal, the ground of rejection has been changed to include Gordy (US 4,346,477). Gordy teaches the aliasing transfers a portion of energy contained in a portion of the carrier signal (the translated signal portions of the harmonics energy at the output of the sampler 20, Fig. 3, col.4, lines 44-68), thereby generating a down-converted signal including the channel/band combination (the fourth harmonic component at 140 MHz of the down converted IF signal, the 15 MHz signal bandwidth for channel at 380 MHz, col. 4, lines 17-33).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (703)-306-5615. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (703)-305-4385. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to 220 South 20th Street, Crystal Plaza Two, Lobby, Room 1B03, Arlington, VA 22202 (Customer Window). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Charles Chow C.C.

December 17, 2004.

Nguyen Vo
nVo
12-23-2004

NGUYEN T. VO
PRIMARY EXAMINER